Intramedullary Spinal Cord Metastasis: Case Report

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Abstract : A case of intramedullary metastatic cord tumour which originated from a bronchogenic carcinoma is presented here with its rarity and difficulties in diagnosis.

Key Words: Spinal cord, intramedullary tumour, metastasis.

INTRODUCTION

Intramedullary metastatic tumours of non-neurogenic origin are rare (1,13). The increased survival of patients with certain cancers, as a result of improved treatment, has been accompanied by a greater frequency of cerebral metastasis (5). Nevertheless, despite new radiological techniques, the in-vivo diagnosis remains difficult and most cases are still recognized only at autopsy (2,7,14,16,17).

The non-neurogenic tumours metastasizing to the spinal cord are carcinoma of the lungs, breast carcinoma, lymphomas, melanomas, colorectal carcinomas, Hodgkin's disease, leukaemia, testis tumours, corpus uteri tumours and thyroid cancers (1,3,5,8-10,12,13,14,17).

CASE REPORT

A 44-year-old man complained of numbness in the left arm and neck pain for 8 months and a month before admission he developed numbness in both arms and legs followed by walking failure. Systemic evaluation was normal except asthenic appearance and weight loss. Neurological findings included tetraparesis more prominent on the left lower extremity and ascending sensorial disturbance to the C5 level. Bilateral deep tendon reflexes were normoactive, and abdominal skin reflexes were abolished. Bilateral Babinsky sign and Achilles clonus were present. Cervical, thoracal, and lumbar X-rays were normal. On the chest X-ray the mediastinum was shifted towards the right.

Cervical magnetic resonance imaging (MRI) showed an intramedullary mass lesion at C5 level (Fig. 1,2) and thorax computerized tomography (CT) revealed bronchogenic carcinoma in the right lung. On abdominal ultrasonography and abdominal CT there were bilateral suprarenal masses and panaaortic lymphadenopathies. Sedimentation was 15/45 mm (at 30 / 60 min.) and tumour markers (CEA, PAP, FP, CA 19-9, CA 125) had increased.

We started corticotherapy (dexamethason 24 mg/days), and he was operated because of progressive tetraparesia, and to achieve histological confirmation. Cervical 4,5,6 laminectomies and myelotomy were performed, and the intramedullary spinal cord tumour was removed subtotally. The tumour was infiltrative and enlarged the spinal cord fusiformly. Histological evaluation revealed a metastatic carcinoma. Postoperative neurological examination showed no change. The bronchus biopsy also showed bronchogenic carcinoma and bone scintigraphy revealed multiple bone metastases.

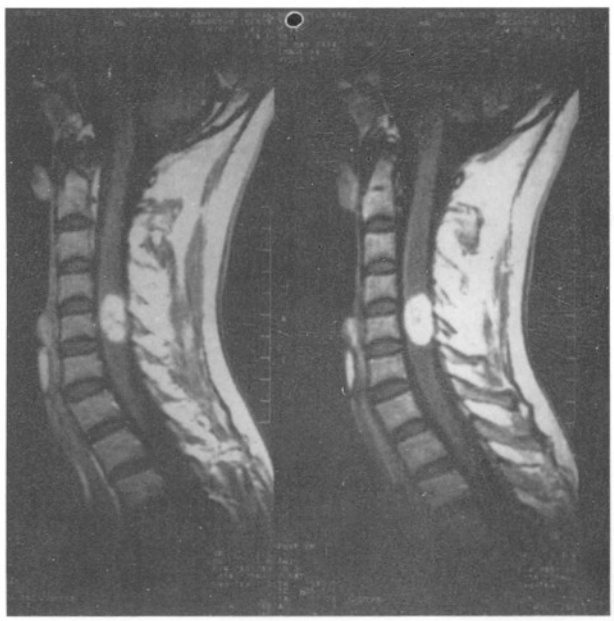

Fig. 1 : Sagittal MRI showing the intramedullary metastatic tumour.

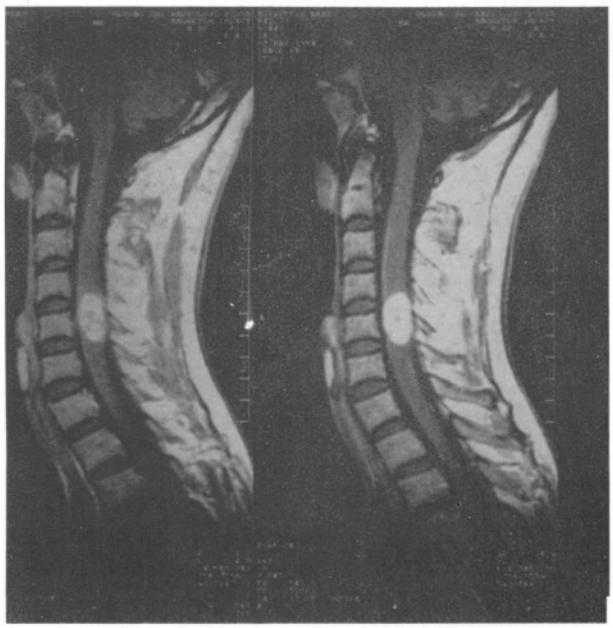

Fig. 2 : Axial MRI showing the intramedullary metastatic tumour.

After one week the patient was discharged with slight pain in the bones and neurological deficits and, radiotherapy was advised. It was learned that he did not have radiotherapy and died of respiratory problems.

DISCUSSION

Intramedullary spinal cord metastases are an unusual complication of malignancies arising outside the central nervous system (CNS) (1,9,10,14). Incidence is reported as 1-3.4% in the literature (5,14,15). As the diagnosis of spinal cord metastasis of non-neurogenic origin has often been made only, at post-mortem, this may be why its real incidence is not known, (7,14).

Of the tumours of non-neurogenic origin that metastasize to the spinal cord, carcinoma of the lung is the most common accounting in some series for 50 % or more of the cases (1,7,8,11,14,17). In the study of Grem et al (8) breast carcinoma was found to be the second most common. In less than 2 % of cases, the site of the primary tumour was unknown (8).

The thoracic cord is the most common site of intramedullary metastasis of non-CNS origin, followed by the cervical cord (8). In our patient the location was the cervical cord. Leptomeningeal and intradural involvement can be found together with the intramedullary tumour (1,13,14).

Spinal metastatic tumours of non-neurogenic origin spread by arterial seeding through the vertebral venous system and by direct extension from nerve roots of subarachnoid spaces (10,14). In our patient the probable cause was arterial seeding.

Spinal cord tumours of non-neurogenic origin present with symptoms of 1-5 weeks, duration (1,5,14). Pain and weakness, often accompanied by bladder and bowel dysfunction and sensory loss, are the most common complaints (1,7,8,13,14). Clinical diagnosis is frequently difficult especially when there is no known primary or any metastasis (14).

Clinical and CSF findings cannot help in the differential diagnosis of intramedullary metastasis and epidural metastasis, leptomeningeal carcinomatosis, paraneoplastic necrotizing myelopathy, radiation myelopathy, ruptured arteriovenous malformation, or other lesions causing an acute myelopathy (1,8,9,14), because CSF and cytology findings are not specific (2,7).

Because of rapid deterioration and widespread metastases, the survival rate is shorter than 2 months (7,14). In our patient it was 1 month.

Radiological studies may be normal or myelography and CT may show widened spinal cord (7). Myelograms have been reported to be negative in as many as 40-42 % of intramedullary metastases of non-neurogenic origin (1,8,13,14). The value of MR imaging devices in diagnosing spinal cord disease non-invasively has been confirmed (3,7,11,14,16). After injection of Gd-DTPA MR imaging is the most sensitive procedure available for demonstration of intramedullary tumours (16). In our patient we used MR imaging.

Reports of treatment are uncommon but the general experience is that attempts at surgical extirpation carry a very high risk of worsening deficits and high mortality (6). These tumours are radiosensitive and radiotherapy is effective for their treatment (17).

Most authors advise either no treatment or radiotherapy. This is probably a dangerous advice, as an intramedullary mass does not necessarily mean that it is due to a metastasis and surgical exploration should be carried out to achieve at least histological confirmation (6). If there is no other metastasis in the CNS, systemic growth of the neoplasm is under control and if the tumour is well-encapsulated and radioresistant, then surgical extirpation of the metastasis could be considered (17).

Patients who were paraplegic before operation remain unchanged. They must be operated on while still able to walk (2). We operated on our patient because of progressive neurological deterioration. It is obvious that the quality of life depends on the preoperative neurological state (4).

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